DOCUMENT RESUME

ED 328 543 SP 032 891

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TITLE Planning Small-Scale Research. SCRE Spotlights, 27.
INSTITUTION Scottish Council for Research in Education.
PUB DATE Nov 90
NOTE 6p.
AVAILABLE FROM The Scottish Council for Research in Education, 15 St. John Street, Edinburgh, Scotland EH8 8JR.
PUB TYPE Guides - Non-Classroom Use (055)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Case Studies; Data Collection; *Evaluation Criteria; Foreign Countries; Literature Reviews; Observation; *Research Design; Researchers; *Research Methodology; *Research Tools; Surveys

ABSTRACT

This paper discusses the nature of research and identifies some of the questions which it is important to address at the planning stage and to return to throughout the life of any research study. In a discussion of the nature of research, it is noted that research findings must be potentially generalizable. The criteria for identifying research questions are discussed and suggestions are made on research methods. The discussion covers the feasibility and/or appropriateness of approaches, such as surveys or case studies, and practical considerations, such as how extensively the literature should be reviewed and how to do data collection. It is pointed out that a researcher's responsibility also includes noting the limitations of the study. (JD)

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Planning Small-Scale Research

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Anyone undertaking small-scale research is likely to be keen to get out there and start, particularly if the work involves the collection of data. SCRE is in the business of encouraging practitioners, especially teachers and educational psychologists, to undertake this kind of activity. The purpose of this Spotlight is to discuss the nature of research and to identify some of the questions which it is important to address at the planning stage and to return to throughout the life of any study.

Let me make it clear from the outset that good research is demanding and cannot effectively be completed on the odd wet Saturday afternoon. But it is, at the same time, rewarding and invigorating in the added *understanding* it brings to educational matters. It *is* worth the effort.

WHAT COUNTS AS RESEARCH AND WHAT CAN BE EXPECTED OF IT?

Research extends knowledge. In this context we are talking about knowledge in a form which allows it to be usefully shared. Sometimes that form may be one of *explanations*

explanations

of, say, children's learning difficulties, the effectiveness of schools, the relationships between teaching methods and pupils' achievements, anxiety levels or unruly behaviour, the efficiency of different management strategies or a host of other phenomena on which research can focus. Alternatively, it may have a more *developmental* or *evaluative* aspect where improvement in some aspect of

evaluations

policy, practice or organisation is sought. Where it is developmental, however, it is not just a question of producing new materials or methods (somehow, anyhow); it also implies the development of understanding of *why* the innovation has worked (or not as the case may be) and *how* that knowledge might be brought to bear on other sets of circumstances.

We are not talking here then about mere observation and speculation, nor about polemic no matter how fluent and convincing. And research goes beyond description

research aids understanding of alternatives

to include disciplined enquiry which generates interpretations, inferences and conclusions based on evidence and logical argument. In itself, research cannot tell the practitioner what is the 'right' course of action to take, nor the policy maker the 'correct' decision. Decisions on actions and policy are influenced by many other factors: finance, local resources, party politics, the likelihood of co-operation from others and

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personal preferences. What research *can* do, however, is to help everyone *understand* the alternative decisions or courses of action which are available, and the implications of making particular choices among those alternatives.

One final point about the nature of research is that its findings must potentially be generalisable. If, at one extreme, the findings are unique to a specific set of circumstances, then there is nothing to be learned that will be useful in any other context in which the researchers (or anyone else) might find themselves. To be 'potentially generalisable', however, does *not* imply that one has to operate at the other extreme of large-scale studies with statistical estimates of how generalisable the findings are to the population at large. But it *does* mean that reports of research have to provide enough information about the circumstances in which it was carried out so that others can judge whether it is reasonable to hypothesise that the findings might be applicable (or not) to their own contexts which will be, in at least some respects, different.

potentially generalisable

WHERE DO WE START?

To say that one has to start by clarifying the area of research and identifying *research questions* is a cliché, but is also of fundamental importance. These questions have to be returned to again and again as the research progresses. Lewis and Munn, in their excellent publication *So You Want To Do Research?* (see below), showed the crucial part the questions play in decisions about the nature of evidence to be gathered, how to do that gathering and what kinds of claims the research will ultimately be in a position to make.

identify research questions

It seems obvious to say that the first priority is to ensure that the research questions are clear and realistic in the light of the time and other resources available. But people (including experienced researchers like me) easily get carried away by enthusiasms and often rush out to collect data which they later find they cannot use. It really is important to be rigorous about collecting only data with a direct relationship to the research questions and about planning to report the research within a framework of the research questions. Such a strategy is immensely helpful with difficult decision-making as the research progresses, inhibits temptations to collect extra data because it 'might turn out to be useful' (it never does), avoids the rambling accounts of personal research (which do little to entice readers) and denies the researcher faced with the analysis stage the opportunity to avoid it by collecting yet more data (which only exacerbates the problem).

collect andplan to report only data which directly relates to these questions

In putting rather rigid emphasis on the articulation and clarification of research questions at the start of the research, there are two points to be made of a more relaxed kind. First, I am aware that if researchers feel obliged to spend too long in the initial planning stage, their motivation to undertake research may disappear. Secondly, research questions often are added to, deleted or modified as the research unfolds. Notwithstanding these moderating points, however, it is a poor research study which collects data (often the wrong data) before thinking out what it is aiming to achieve, and if those aims are changed in the course of the study it is important that this is *consciously* done.

Finally, in this section I should comment that researchers' initial goals are *always* over-ambitious. Partly for that reason, I would advise practitioners to select research questions which relate closely to their other work. In that way reading around the topic will be relevant to the

initial goals always over-ambitious

broad spread of the individual's responsibilities and ensure that they are mutually reinforcing. The other view, of course, is that a choice of research in a different area will provide some relaxation from the habitual grind and offer new horizons. For people who have full-time jobs, however, I would want to add that it also will make near-impossible demands on them.

WHERE DO WE START?

The choice of approach will depend, of course, on the research questions. If, for example, a substantial amount of small-scale work already has been carried out in the area of interest, and the research question is directed towards establishing whether the findings apply on a wider scale, then a *survey* would probably be appropriate. But surveys are demanding of resources, and their constituent questionnaires or interview schedules require time-consuming and painstaking effort prior to data collection—if one does not get the questions right in advance, there is seldom the opportunity to go back and do it again. Surveys are hardly ever a wise choice if existing research in the area is meagre; the researcher simply does not know what questions to ask. In those circumstances, the researcher may have to carry out small-scale studies before undertaking the survey.

surveys

In contrast with the large-scale questions which are relevant to surveys, the researcher's interest may be in understanding *one* educational context in great depth. The research questions may be of the form 'What is going on here?'. In that case, educational researchers borrow techniques from *ethnography* and, in contrast with surveys, endeavour to behave like anthropologists going into a 'new' situation without any preconceived ideas of what they may find. That is not to say, however, that no boundaries are placed on what is of interest. One might, for example, be concerned with the general question of 'What is going on between the teacher and the pupils who have learning difficulties in this classroom?'. Classroom observation (active participant, privileged observer or limited observer) and interviewing (including 'life history' approaches) are techniques that could be used; all of these have the potential to collect much more information than the researcher will be capable of, or interested in, using. Unlike the survey where the reader will have to ask 'Is the survey sample a representative one?' the ethnographic study has to ask 'What is this case representative of?'

case studies

Not all *case studies*, of course, are ethnographic. Like ethnographies, they all have boundaries but they are not necessarily characterised by the same open-ended, inductive approach. A case study might, for example, test systematically an hypothesis that had been established in some other piece of work; or it might be concerned with a focused historical and documentary study. Neither of these, on the face of it, would count as an ethnographic study but both would in some sense enable the researcher to understand one case in greater depth.

Researchers want to share their findings with others and generalise from them. Survey research has to be clear, therefore, about the population to which it applies (eg all schools in Scotland, schools in one local authority or a subset of those schools?), and ensure that it is based on the kind of sample from which valid statistical inferences can be drawn. Case studies have to document the environment in which they are carried out so that others can judge whether valid inferences can be drawn.

the basis for valid inferences

It is sometimes tempting to set up a comparison between experimental and control groups (to determine, for example, whether one teaching approach leads to

higher achievement than another). In real (naturalistic) educational contexts this is hardly ever possible. It would be necessary to 'control' a very large number of other variables which could influence the outcomes of the experiments. While that may be achieved in agricultural studies or psychological laboratories, schools and classrooms are a different matter.

WHAT OTHER MATTERS SHOULD BE ADDRESSED?

Having decided on the approach, does everything else fall naturally into place? Not quite. For a start, many studies require a combination of, perhaps, the empirical approaches described above or a blend of one of them with, say, an historical or philosophical enquiry. More immediately, however, there continue to be choices to be made at every stage of the research. This section considers a few of these.

time spent on the literature

First, there is the question of how much time to spend at the start of the research on *reviewing the literature* available on the topic. If this is neglected, then the chance of building on what is already known may be lost and there will be a danger of re–inventing the wheel. Moderation is necessary in all things, however; if *all* the relevant literature was consulted the research might never get underway.

data collection

Secondly, there are questions of *data collection*. No matter what method is used (questionnaire, interviews, observation, tests, documentary analysis) it is necessary to check that each element or item relates to one of the research questions and to avoid collecting data, such as biographical details, unless they are absolutely necessary. Nor should information be gathered without considering how it will be used in the analysis. Almost everyone either collects too much which then lies untended in filing cabinets and on tape, or gathers it in a form which is unsuitable for the analysis. Thought must be given to the analysis in advance; it will influence decisions about sampling and collecting data. If too many variables are taken into account, the analysis may become unmanageable. A small number of variables, with other factors controlled as far as possible, will lead to modest but far more effective research studies. This applies both to work which *tests hypotheses* (where researchers believe they know already the factors which influence the way things are) and to that which *generates hypotheses* (where researchers are exploring new ground).

preparing for data collection

Thirdly, *preparing procedures* for data collection takes longer than you think. Questionnaires and interview schedules should be scrutinised by others, then piloted. Even postal questionnaires should be *talked* through with several respondents at the pilot stage. If the questions to be asked are changed as a result of the pilot findings, then a check back to ensure they are still applicable to the research questions is necessary. There is a wide variety of decisions which might be faced. For example, if tests are being trialled, it will be necessary to decide what the trial is for (administrative feasibility, validity, reliability, value for particular audiences?). The purpose will determine the form of the trial.

As a rather different example, suppose we consider a case where *open–ended questions* are used in interviews. In those circumstances ways of scrutinising the extent to which the interviewer contributes his or her own ideas to the discussion must be found. Questions which *probe* interviewees' answers to earlier questions are usually permitted; those which *prompt* interviewees by offering ideas to be 'agreed with' generally are not.

Finally, there is the matter of the time needed for *analysis and writing the report*. It is not uncommon for researchers to become over–enthusiastic about data collection, to underestimate the time needed for the later stages of the project and, in consequence, to find themselves in the position of having put in a major effort but with little to show for their work at the end.

time for analysis and writing up

It is one thing to alert researchers to the range of choices they will have to make and the possible pot–holes they will encounter; it is another to offer a recipe for eliminating all the difficulties. There is no such recipe, nor are there perfect resolutions of the problems to be faced. That is no reason to disregard those problems, however, or to fail to make the enquiry as disciplined as possible; but it does imply that the account of the research will have to be careful about the claims it makes and, particularly, the generalisations which are inferred. It is the researcher's, not the reader's, responsibility to draw attention to the limitations of the conclusions to be drawn from any study.

researcher must draw attention to limitations

A DIFFERENT ATTITUDE OF MIND

Let me conclude by emphasising the satisfaction and stimulation that involvement in research can bring to the work of practitioners in education (even though some aspects of it are very 'routine' and almost invariably take longer than expected). It does, however, require a distinctively different attitude of mind from the confident, informed and relaxed assurance that tends to characterise much good teaching and other educational practice. Research requires the individual constantly to question and readdress his or her fundamental beliefs and plans for action and to make explicit the values which underlie research plans (values which in other circumstances might be seen as best left covert). Because the *processes* of research and teaching are distinctively different, they complement each other admirably when pursued by the individual practitioner.

Within its Practitioner MiniPaper series, SCRE is publishing a number of guidebooks on doing research. The first two titles are available now from SCRE or through bookshops. Guides to semi–structured interviewing and to classroom observation are being prepared for publication in 1991.

So You Want to do Research? A guide for teachers on how to formulate research questions *(Ian Lewis/Pamela Munn) £2.20.*

Using Questionnaires in Small–Scale Research: a teacher's guide *(Pamela Munn/Eric Drever) £3.90.*

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Printed and published by the Scottish Council for Research in Education, 15 St John Street, Edinburgh, EH8 8JR, November 1990.